



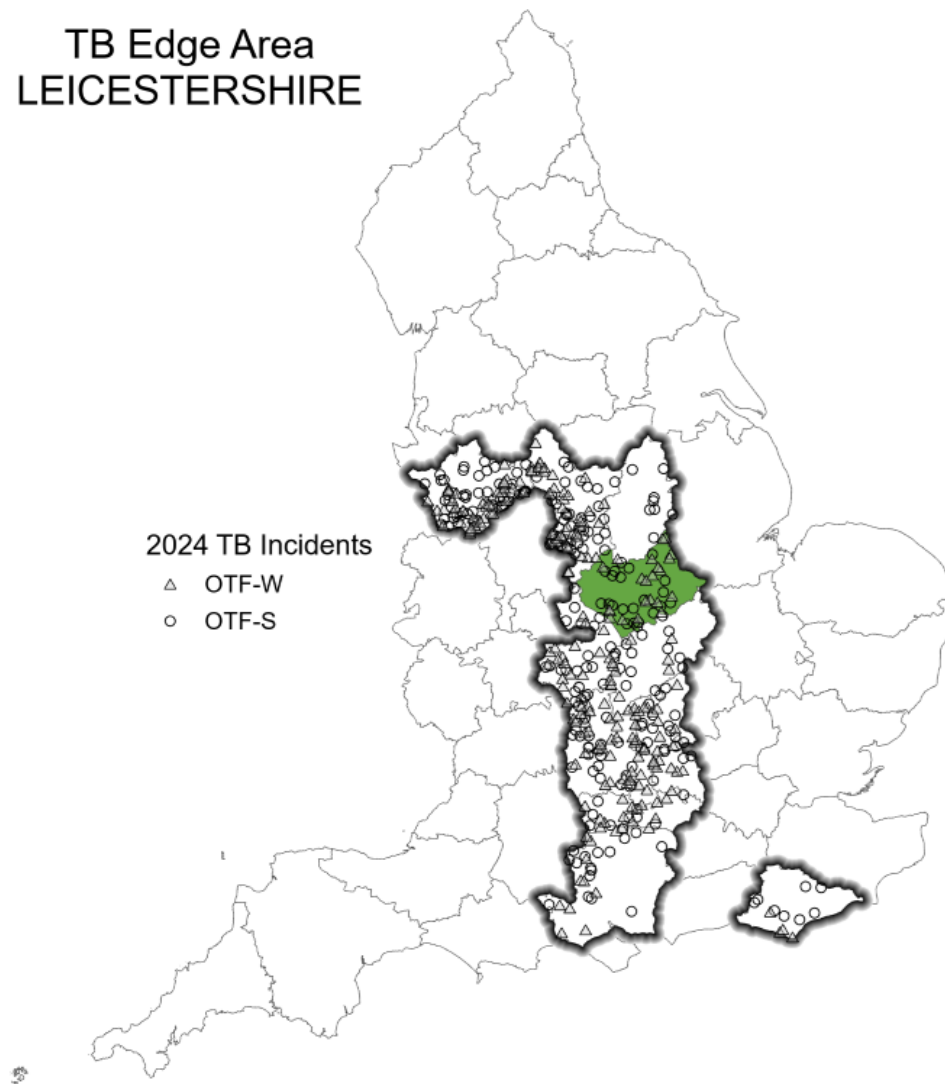
Animal &
Plant Health
Agency

Year End Descriptive Epidemiology Report of Bovine TB in the Edge Area of England 2024: Leicestershire

TB Edge Area
LEICESTERSHIRE

2024 TB Incidents

- △ OTF-W
- OTF-S



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Introduction

The Edge Area was originally established in 2013, along with the Low Risk Area (LRA) and High Risk Area (HRA) of England. In 2014, the 3 bovine tuberculosis (TB) risk areas were incorporated into the UK government's strategy to achieve Officially TB-Free (OTF) status for England by 2038. A key action was to recognise the different levels of TB in different parts of the country and to adjust the approaches to TB surveillance and control in each risk area accordingly. The current aim is to obtain OTF status for the Edge Area as soon as possible.

TB in cattle and other mammals is primarily caused by the bacterium *Mycobacterium bovis* (*M. bovis*), and the disease is subsequently referred to in this report as TB. Although other sources may refer to TB 'breakdowns,' this report will use the term 'incidents' throughout.

This report describes the frequency and geographical distribution of TB in cattle herds in Leicestershire, an Edge Area county, in 2024. It examines what factors are likely to be driving TB in this area, and the risks the disease in this county may pose to neighbouring areas.

It is intended for those involved in the control of TB, both locally and nationally. This includes, but it is not limited to, cattle farmers, private veterinarians, government, policy makers and the scientific community.

Classification of TB incidents

Unless otherwise specified, this report includes all new TB incidents detected during the reporting period (1 January to 31 December 2024). This includes both 'Officially Tuberculosis-Free Status Withdrawn' (OTF-W) and 'Officially Tuberculosis-Free Status Suspended' (OTF-S) incidents.

OTF-W incidents are those involving the detection in the affected herd of at least:

- one reactor (positive animal) to the Single Intradermal Comparative Cervical Tuberculin (SICCT) test, or a positive animal to the supplementary interferon gamma (IFN- γ) blood test, with typical lesions of TB identified at post-mortem (PM) meat inspection, or
- one animal (such as WGS a skin test reactor, interferon gamma test-positive animal, or slaughterhouse (SLH) case) with *M. bovis*-positive polymerase chain reaction (PCR) test (or bacteriological culture) results in tissue samples collected from carcasses during the PM inspection.

OTF-S incidents are triggered by reactors to the skin test (or interferon gamma test-positive animals), but without subsequent detection of TB lesions or positive PCR test (or culture) results in any of those animals.

Cattle herds can also have their OTF status suspended without necessarily experiencing a TB incident if, for instance, a TB test becomes overdue, or pending

laboratory tests of suspected cases of TB reported at routine post-mortem meat inspection during commercial slaughter of cattle.

OTF-S incidents may be reclassified as OTF-W incidents following further testing and post-mortem examination of reactor cattle subsequently removed from the TB incident. This is particularly relevant for incidents which occur towards the end of the reporting period and may cause discrepancies in the number of OTF-W or OTF-S incidents reported in the current and previous reports, Edge Area Year End Epidemiology reports or other official TB statistics.

Furthermore, the number of TB incidents and designation of those incidents as OTF-W or OTF-S may differ in this report compared to other official TB statistics due to differences in the information available at the time datasets are accessed.

In Leicestershire there were 12 [Approved Finishing Units](#) (AFUs) active during 2024, all of which were active at the end of the reporting period. None experienced a new TB incident, and 3 had an ongoing incident at the end of 2024. These have been excluded from the numbers presented in this report due to the limited epidemiological impact of these incidents, with the exception of the incidence per 100 herd years at risk (HYR), which does include new TB incidents and time at risk contributed by AFUs.

Details of the data handling methodology used in this report, a glossary of terms, and the TB control measures adopted in the Edge Area, can be found in the [explanatory supplement for the annual reports 2024](#).

Cattle industry

Beef is the predominant cattle enterprise in Leicestershire (64% of cattle). However, there is a large number of large dairy herds, most of which are in the north-east of the county. As in previous years, the majority of herds (475, 63%) had fewer than 100 cattle, with a median size of 61 cattle (Appendix 1).

There was one livestock market for cattle in Leicestershire, in Melton Mowbray. This market was approved by the Animal and Plant Health Agency (APHA) in 2018 to hold dedicated sales for TB-restricted cattle. There were 12 AFUs in Leicestershire in 2024, as listed in Appendix 2. This was a reduction of 4 compared to 2023.

All herds in Leicestershire undergo annual (12-monthly) testing.

Appendix 2 provides a summary of headline cattle TB statistics in Leicestershire.

Number of new TB incidents

A total of 43 new TB incidents were disclosed across Leicestershire during 2024 (22 OTF-W and 21 OTF-S) (Figure 1). This was an increase compared to the 35 in 2023 (7 OTF-W and 28 OTF-S).

The total number of incidents in Leicestershire gradually increased from 42 in 2015 to 64 in 2020 and decreased thereafter. The lowest total number of incidents was

recorded in 2023 (35). Over the last 10 years, the number of OTF-W incidents ranged between 7 and 33, and the number of OTF-S incidents ranged between 20 and 40.

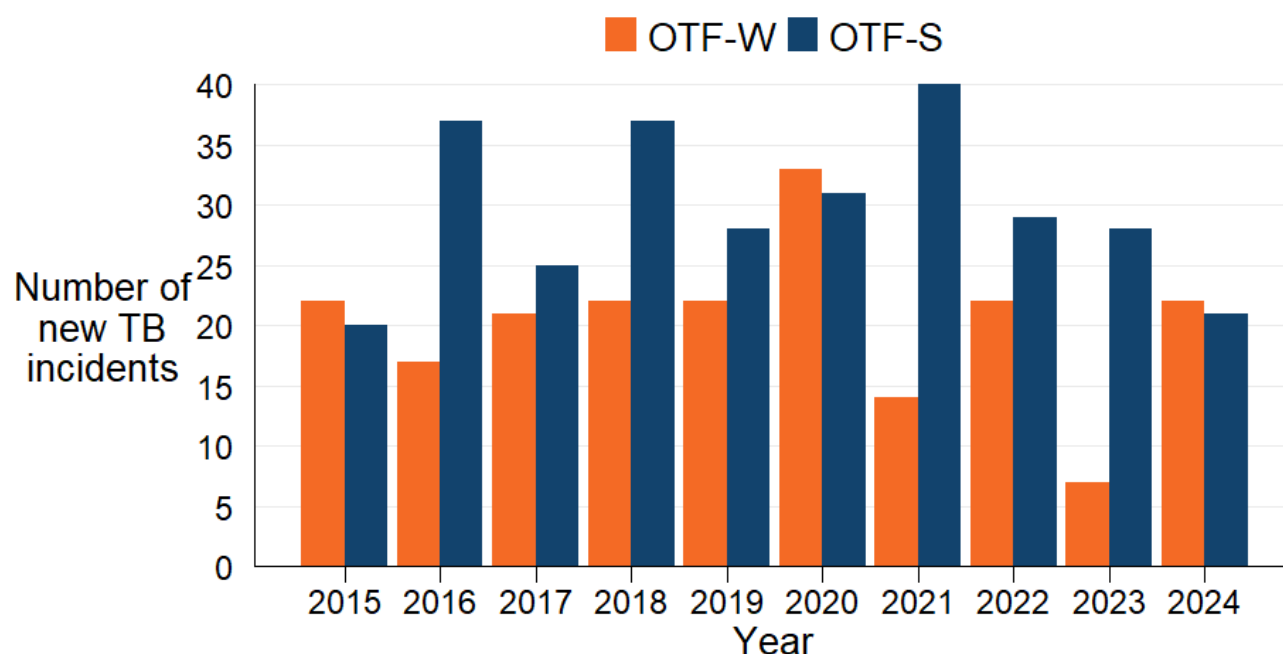


Figure 1: Annual number of new TB incidents in Leicestershire, from 2015 to 2024.

Disclosing TB surveillance method

As shown in Figure 2, whole herd testing (WHT) detected the most new TB incidents (16) in 2024. This was followed by radial testing (8) and hotspot testing (6). Enhanced TB surveillance testing in hotspots (referred to as 'Hotspot testing' in Figure 2 below) refers to an increased testing frequency to 6 or 12 monthly testing (from the routine 4-yearly testing schedule), based on the epidemiological picture in the hotspot.

The number of incidents disclosed by radial testing decreased between 2020 and 2023 before increasing in 2024. This is likely due to the cessation of radial testing during the large avian influenza outbreak in 2022, where radial testing was temporarily replaced with contiguous testing until March 2023.

Slaughterhouse testing and 12-month post-incident check tests (12M test) each disclosed 4 incidents in 2024. Three incidents were detected by 6-month post-incident check testing (6M test), followed by contiguous tests (one) and pre-movement testing (one).

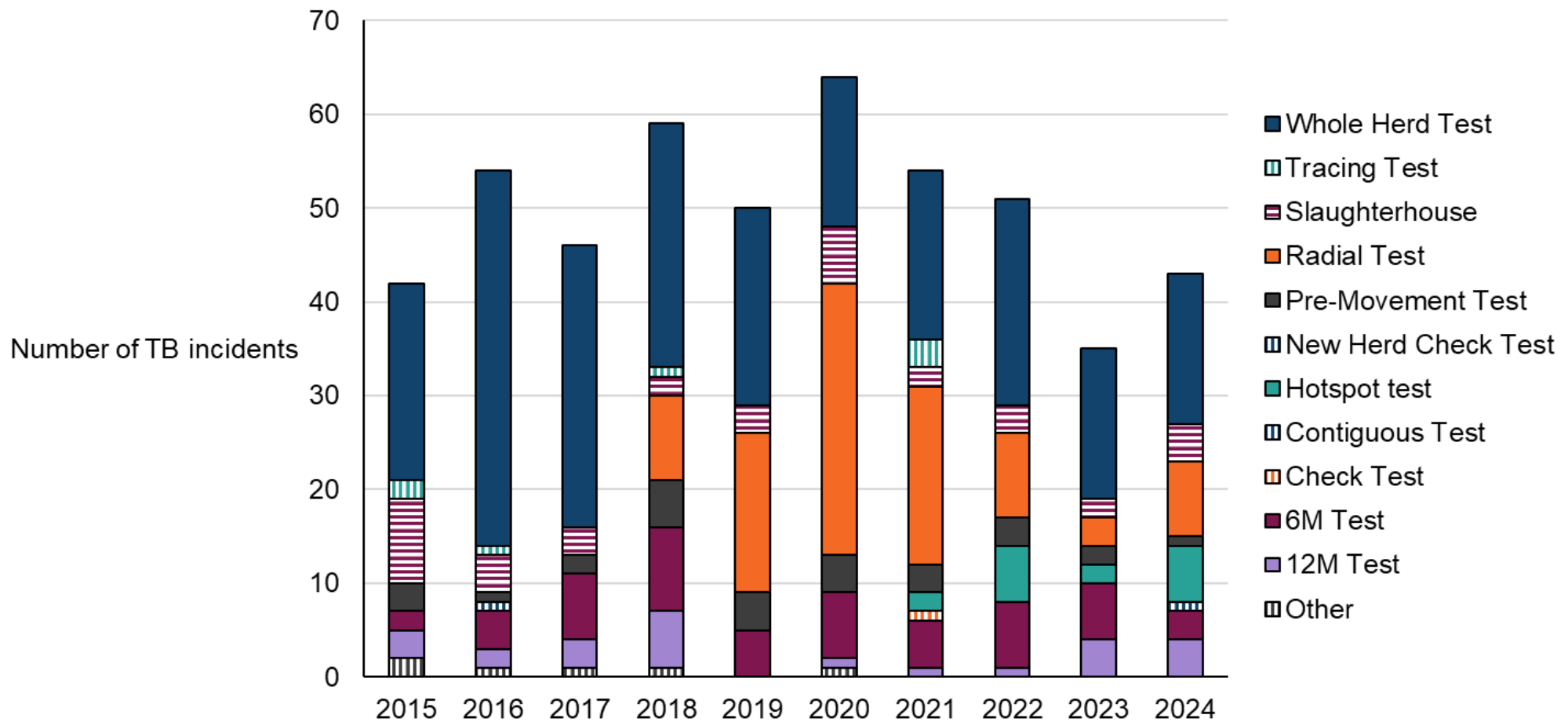


Figure 2: Number of new TB incidents (OTF-W and OTF-S) in Leicestershire in 2024, according to the surveillance methods that detected them. Incidents disclosed by 'Other' tests includes, but is not limited to, private testing, inconclusive reactor retests, and export tests.

Duration of TB incidents

Of the 42 TB incidents that were resolved in Leicestershire in 2024, 17 started in 2024, 23 in 2023 and 2 in 2022. Of those that closed in 2024, one OTF-W incident was persistent (where the affected herd was under movement restrictions for more than 550 days).

As shown in Figure 3, 16 out of the 42 were OTF-W incidents. Three OTF-W incidents were resolved within 101 to 150 days, 6 within 151 to 240 days and a further 6 within 241 to 550 days. The median duration of OTF-W incidents was 217 days (Interquartile Range (IQR) 175 to 363).

The remaining 26 incidents that closed in 2024 were OTF-S, of which 2 were resolved within 101 to 150 days, 17 within 151 to 240 days and a further 7 within 241 to 550 days. The median duration of OTF-S incidents was 191 days (IQR 176 to 260).

The median duration of all incidents which closed in Leicestershire was 198 days (IQR 176 to 292), which was longer than the median duration of all incidents in the Edge Area (186 days, IQR 159 to 260). It was however a decrease compared to the median duration of all incidents in Leicestershire which closed in 2023 (312 days, IQR 175 to 499).

There were 28 TB incidents that were still open at the end of 2024, none of which were persistent.

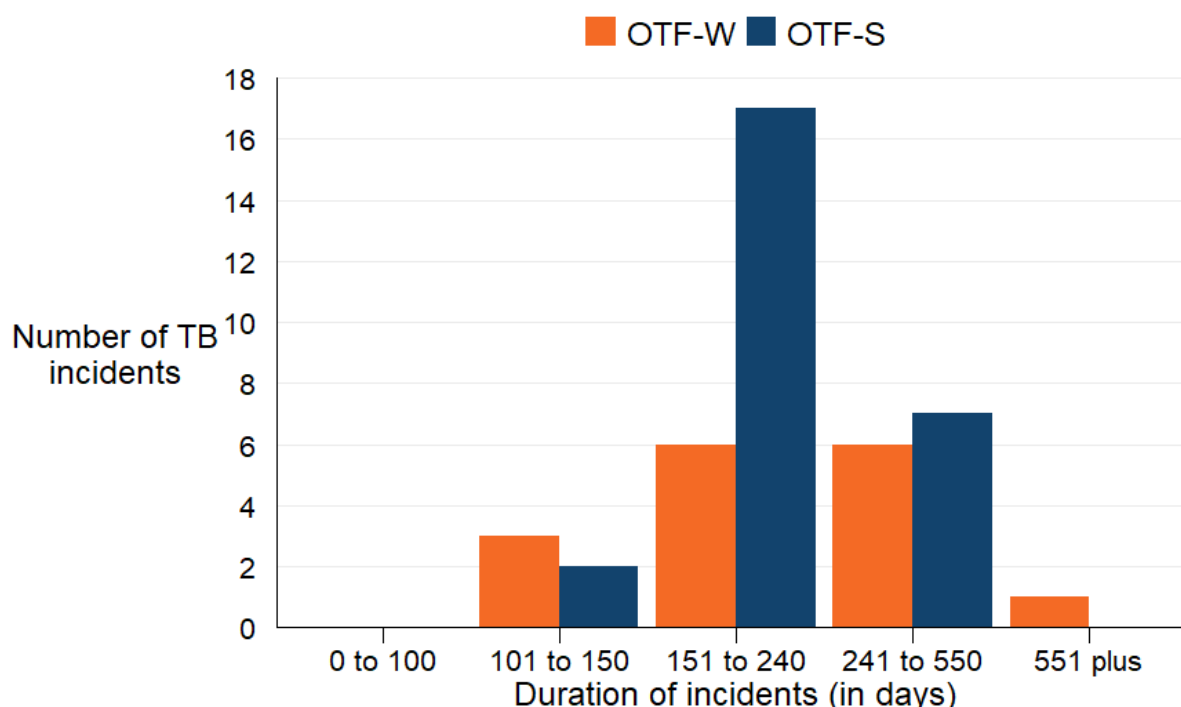


Figure 3: Duration of TB incidents (OTF-W and OTF-S) that closed in Leicestershire in 2024.

Incidence of TB

Leicestershire had the fifth lowest incidence rate out of the 11 counties in the Edge Area at 5.6 incidents per 100 herd years at risk (HYR). This was lower than the overall rate for the whole of the Edge Area in 2024 (7.3), as shown in Figure 4.

Over the last 10 years the incidence rate has fluctuated, with an overall increase from 4.3 in 2015 to 7.7 in 2020, followed by a steady decline to 5.0 incidents per 100 HYR in 2023. There was, however, an increase to 5.6 incidents per 100 HYR in 2024.

In the Edge area overall, the incidence rate increased from 6.6 incidents per 100 HYR in 2015 to a peak of 10.0 in 2020, before gradually declining to 7.3 in 2024, which was a small increase compared to 2023 (7.2).

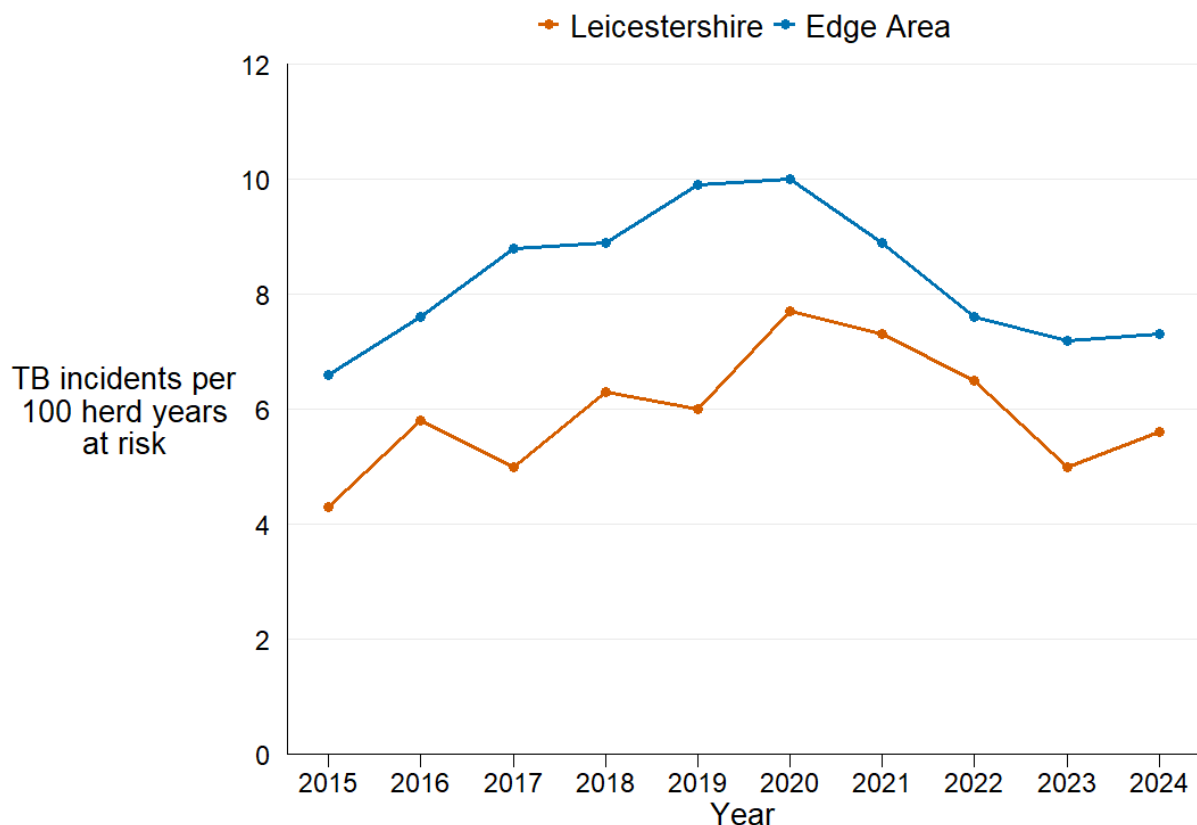


Figure 4: Annual incidence rate (per 100 herd-years at risk) for all new incidents (OTF-W and OTF-S) in Leicestershire and the Edge Area, from 2015 to 2024.

Prevalence of TB

The end of year prevalence of TB in Leicestershire was 3.2%, which was the sixth highest out of the 11 counties in the Edge Area. This was lower than the overall prevalence for the whole of the Edge Area in 2024 (4.0%), as shown in Figure 5.

Between 2015 and 2020, the end of year prevalence increased gradually from 1.6% to 4.0%, with a dip in 2019 to 2.5%. The prevalence then decreased to 2.7% in 2021, increased to 3.1% in 2022, and has remained relatively stable thereafter at 3.1% and 3.2% in 2023 and 2024, respectively.

In the Edge area overall, the prevalence increased steadily between 3.2% in 2015 to 5.9% in 2018. This was followed by a gradual decrease to 3.6% in 2022. In 2023, the prevalence rose to 3.7%, increasing again to 4.0% in 2024.

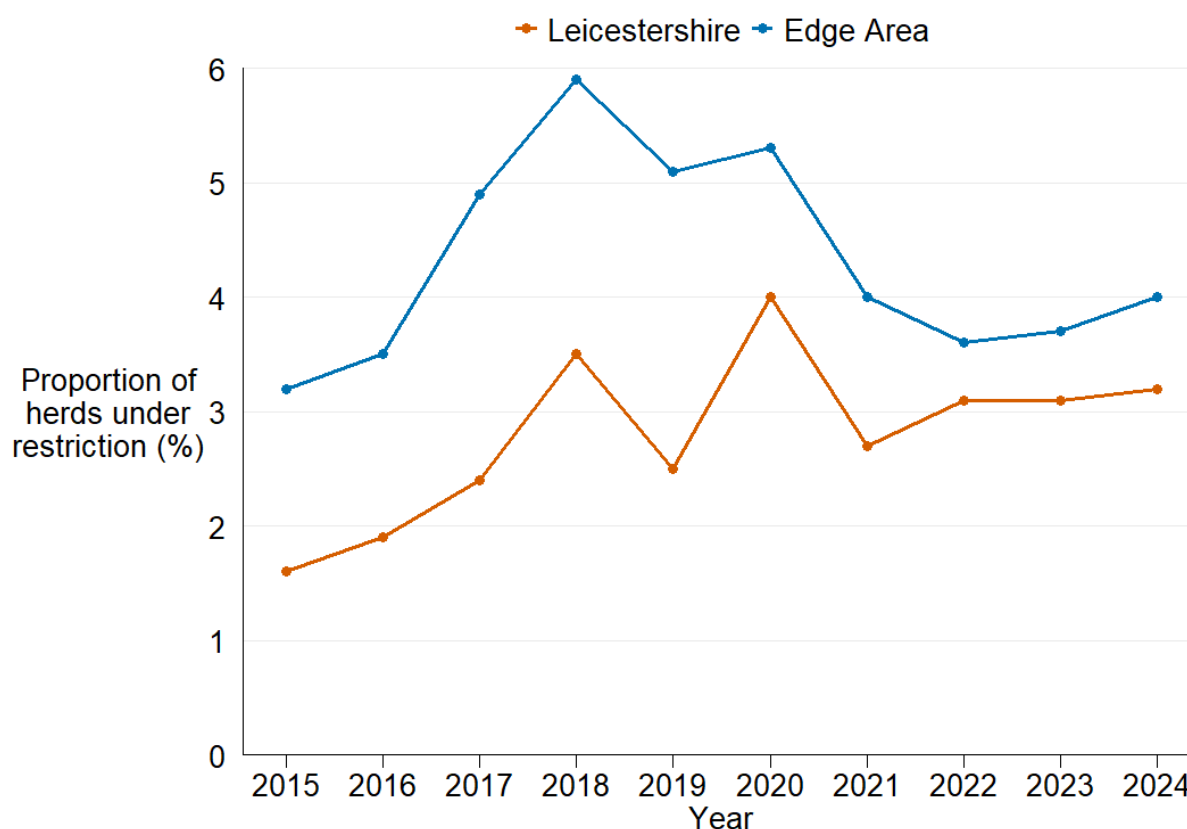


Figure 5: Annual end of year prevalence in Leicestershire and the Edge Area overall, from 2015 to 2024. This is the proportion of live herds under TB movement restrictions on the 31 December 2024.

Skin test reactors and interferon gamma test positive animals removed

A total of 384 cattle were removed from TB incidents in Leicestershire during 2024. Of these, 237 were skin test reactors and 147 were positive by the supplementary interferon gamma (IFN- γ) blood test, as shown in Figure 6.

Compared to 2023, this was a 33% increase in the number of animals removed (289: 174 skin test reactors and 115 IFN- γ positive animals). This increase is likely due to the increased number of OTF-W incidents disclosed in 2024 (from 7 in 2023 to 22 in 2024).

The total number of animals removed in Leicestershire increased gradually between 2015 and 2019, then decreased until 2023. The total number of animals removed from TB incidents ranged between 263 and 512 per year, skin test reactors removed ranged between 120 and 263, and IFN- γ test positive animals between 102 and 307.

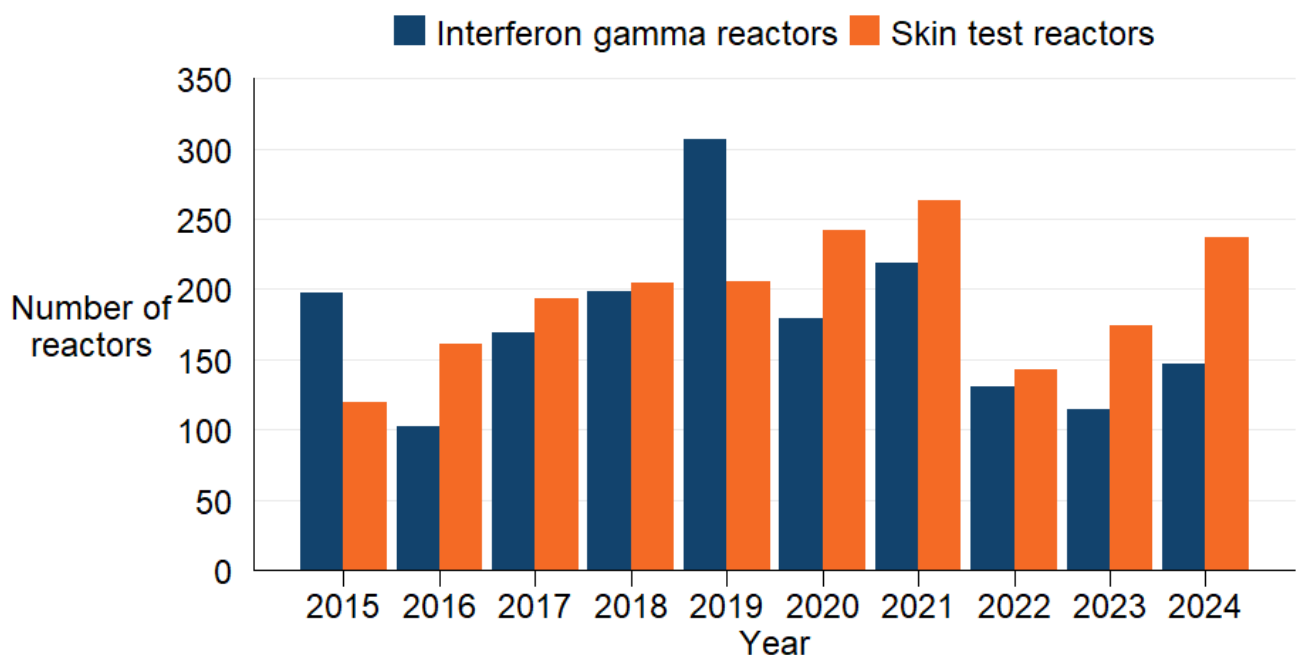


Figure 6: Number of skin test reactors and IFN- γ test positive cattle removed by APHA for TB control reasons in Leicestershire, from 2015 to 2024.

Recurrent TB incidents

Three-year recurrence

In Leicestershire, 9 of the 21 (43%) herds with a new OTF-S TB incident and 6 of the 22 (27%) with an OTF-W incident had experienced another TB incident in the previous 3 years (Figure 7). Overall, 35% of herds experiencing a new TB incident in 2024 were recurrent, which was the fourth lowest reported in the Edge Area. The percentage of recurrent incidents in the whole of the Edge Area was 47%.

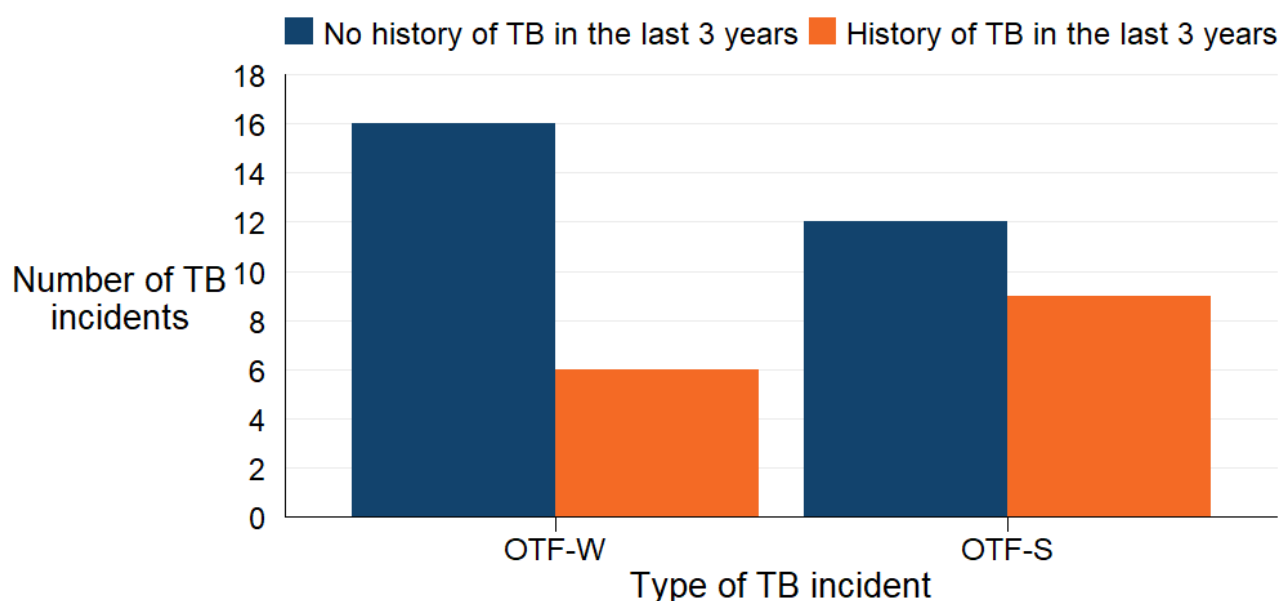


Figure 7: Number of herds with a TB incident (by OTF-W and OTF-S) in Leicestershire in 2024, with and without a history of any TB incident in the previous 3 years of the disclosing test.

Unusual TB incidents

A dairy farm of approximately 600 cattle which experienced an OTF-S incident in 2022 experienced a new OTF-W incident in 2024 and was therefore classed as a recurrent herd incident. This new incident, which had been ongoing for more than a year at the time of writing this report, has had over 80 reactors removed to date. The most likely source of infection is currently suspected to be residual infection within the herd from the previous incident (as suggested by inconclusive reactors (IR) disclosed during routine testing), which was likely originally caused by purchased animals. The whole genome sequencing (WGS) clade that was isolated on this farm was clade B3-11, which is usual for the area, as it is not situated near Hotspot 23 (HS23).

TB incidents in other species

There is no statutory routine TB surveillance of non-bovine species, apart from Post-Mortem Examination (PME) of animals slaughtered for human consumption, or carcasses submitted to veterinary laboratories for diagnostic investigation. Targeted TB testing takes place in non-bovine herds under TB movement restrictions due to PCR and/or bacteriological culture positive incidents of *M. bovis* infection, and in specific herds of camelids, goats and captive deer at an elevated risk of infection. Enhanced voluntary wildlife surveillance takes place in LRA hotspots, but not within the Edge Area. Although no active surveillance of wild deer is in place, reporting of suspected TB lesions in wild deer and wildlife carcasses is statutory and suspect carcasses are inspected and tested by APHA.

There were no incidents of TB reported in non-bovine species in Leicestershire in 2024.

Geographical distribution of TB incidents

The geographical distribution of new TB incidents in 2024 generally mirrored the uneven density of cattle holdings across Leicestershire, with higher densities in the north and south of the county and a low density of herds across the centre (Figure 8). This is similar to the distribution in previous years.

In previous years, OTF-S incidents were mainly located in the south-west of Leicestershire, however in the last 3 years they also occurred in the north and east of the county. This could be explained by earlier detection of the disease (before visible lesions develop) due to enhanced testing in HS23.

OTF-W incidents located in the north of the county were caused by WGS clade B3-11. This is not unexpected, as B3-11 is the clade circulating in HS23 and is the most predominant clade detected in Leicestershire every year. The clade of one incident in HS23 was undetermined.

Five OTF-W incidents in the centre and south of Leicestershire were caused by clade B6-62.

One incident with clade B6-11 was located in the south of the county close to the border with Northamptonshire.

There was one incident with clade B4-11 to the north of Lutterworth. The source of infection in this incident remains undetermined, with fomites such as contaminated vehicles a possible source.

There were a further 2 incidents in the south of the county in which the WGS clade was undetermined.

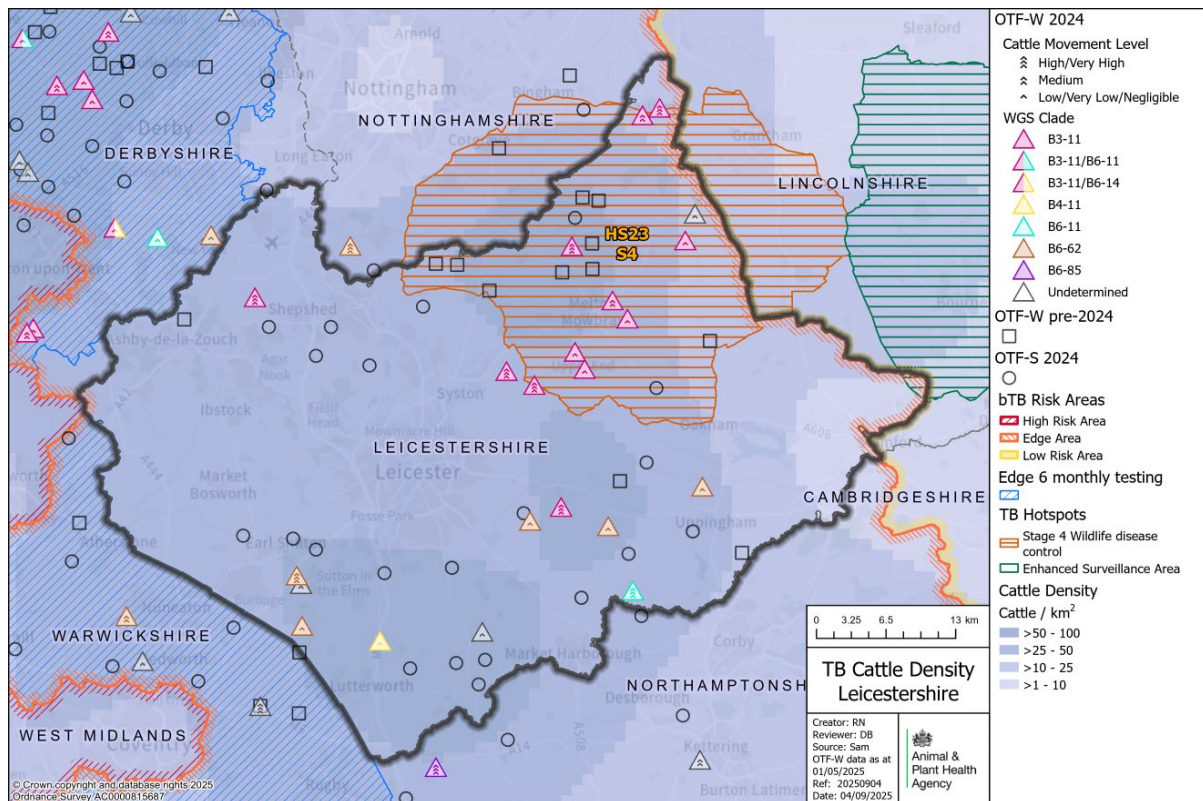


Figure 8: Location of cattle holdings in Leicestershire with new TB incidents (OTF-W and OTF-S) and OTF-W incidents still ongoing at the beginning of 2024, overlaid on a cattle density map.

Figure 8 description: Map of Leicestershire and adjoining areas showing the cattle density, the geographical locations of cattle holdings with new TB incidents (OTF-W and OTF-S) in 2024 and cattle incident holdings with OTF-W incidents still ongoing at the beginning of 2024, shown as squares. Dark blue areas represent higher cattle density and light blue represent lower cattle density. The 2024 OTF-W incidents are shown as triangles, coloured by WGS clade, and contain chevrons to show the cattle movement algorithm (CMA) score allocated to the incident (low/medium/high-risk of cattle movements). Pink represents clade B3-11, half pink and half turquoise represents co-infection with clades B3-11 and B6-11, half pink and half yellow represents co-infection with clades B3-11 and B6-14, yellow represents clade B4-11, turquoise represents clade B6-11, brown represents clade B6-62, and purple represents clade B6-85. Transparent triangles represent incidents where the WGS clade was undetermined. OTF-S incidents in 2024 are shown as circles. The geographical location of TB hotspots is shown with hashed lines. The colour of the hotspot, along with the suffix S4, indicates the stage of controls in place in 2024: dark orange is stage 4 (wildlife disease control). Enhanced Surveillance Areas are shown with green hashed lines.

TB hotspots

There was one hotspot active in Leicestershire during 2024.

The number of incidents presented in this section may not reflect those shown on the maps in these reports. Incidents shown on the maps are located at the centre of their CPH. Incidents reported in this section include any holdings with land inside of the hotspot boundary.

In this report the number of incidents per year in each hotspot has been gathered using field veterinarian data. Previously, spatial GIS data was used to inform whether a holding was inside of a designated Hotspot. This change may create discrepancies between the number of incidents per year reported here, compared to previous reports.

Hotspots were previously referred to as 'potential' or 'confirmed', depending upon identification, or not, of infection in wildlife populations. This has now changed, and hotspots are managed in 'stages' covering cattle, and where relevant, wildlife. Further details can be found on [April 2025: TB hotspots in the Low Risk Area of England](#).

Hotspot 23

A large number of new OTF-W incidents were found in north-east Leicestershire near Melton Mowbray. This area is covered by HS23, which straddles south-west Lincolnshire, north-east Leicestershire, and south-east Nottinghamshire. All incidents in this area with WGS results were caused by clade B3-11 of *M. bovis* (Figure 8).

HS23 was identified in 2018. From the evidence it was apparent that TB had become endemic in the north-east of the county (HS23) where the presence of WGS clade B3-11 was expanding across the Leicestershire border into Nottinghamshire and Lincolnshire. The original hotspot boundary was reviewed in June 2020 and its area was extended further into Leicestershire and Lincolnshire and included part of south-east Nottinghamshire. The extended hotspot area became effective from September 2020, when culling of badgers in Leicestershire was also licensed by Natural England.

In 2024, in response to genetic analysis of WGS clade data from HS23 incidents from 2018 to 2023, the boundary of the hotspot was shifted to the south and the east, removing large parts of Lincolnshire and Nottinghamshire from the hotspot area. In 2024, the hotspot continued to straddle Leicestershire, Lincolnshire, and Nottinghamshire, but included a larger area covering Leicestershire.

Each year, most incidents occurred in the Leicestershire portion of HS23, except for 2023 where the total number of incidents was the same as in Lincolnshire (Figure 9).

In 2024, there were 10 OTF-W incidents within the new HS23 boundary of Leicestershire, of which 8 were clade B3-11, one was clade B6-62, and one was culture negative. This was double the number of OTF-W incidents compared to the

previous year (5), which is most likely related to the larger area of Leicestershire which is now included within HS23. The number of OTF-W incidents fluctuated between 5 and 16 between 2018 and 2023. There were 4 OTF-S incidents in 2024. The number of OTF-S incidents ranged between 3 in both 2022 and 2023, and a peak of 9 in 2021.

In the Lincolnshire portion of HS23, there was one OTF-W incident in 2024 and no OTF-S incidents. The OTF-W incident was clade B3-11. The number of OTF-W incidents has fluctuated between 2 and 3 between 2018 and 2023. Between 2018 and 2022, the number of OTF-S incidents also fluctuated between 2 and 3, followed by a peak of 5 incidents in 2023.

There were no OTF-W incidents and one OTF-S incident in the Nottinghamshire portion of HS23 in 2024. In 2018, there were 4 OTF-W incidents and thereafter, the numbers ranged between 1 and 3. The number of OTF-S incidents increased from one in 2018 to 3 in 2020. Three OTF-S incidents were detected each year until the single incident in 2024.

Cattle and susceptible non-bovine farmed species (deer, goats, and camelids) have been subjected to enhanced TB surveillance and control measures since the inception of the hotspot. This includes wildlife monitoring through post-mortem examination and tissue sampling for *M. bovis* isolation of any deer and badger carcasses found dead in the area and reported to APHA.

There were no submissions from dead wildlife surveillance in 2024. This may be explained by licensed badger culling operations being carried out in the area since 2020 and the suspension of collections during the avian influenza seasons in 2022 and 2023.

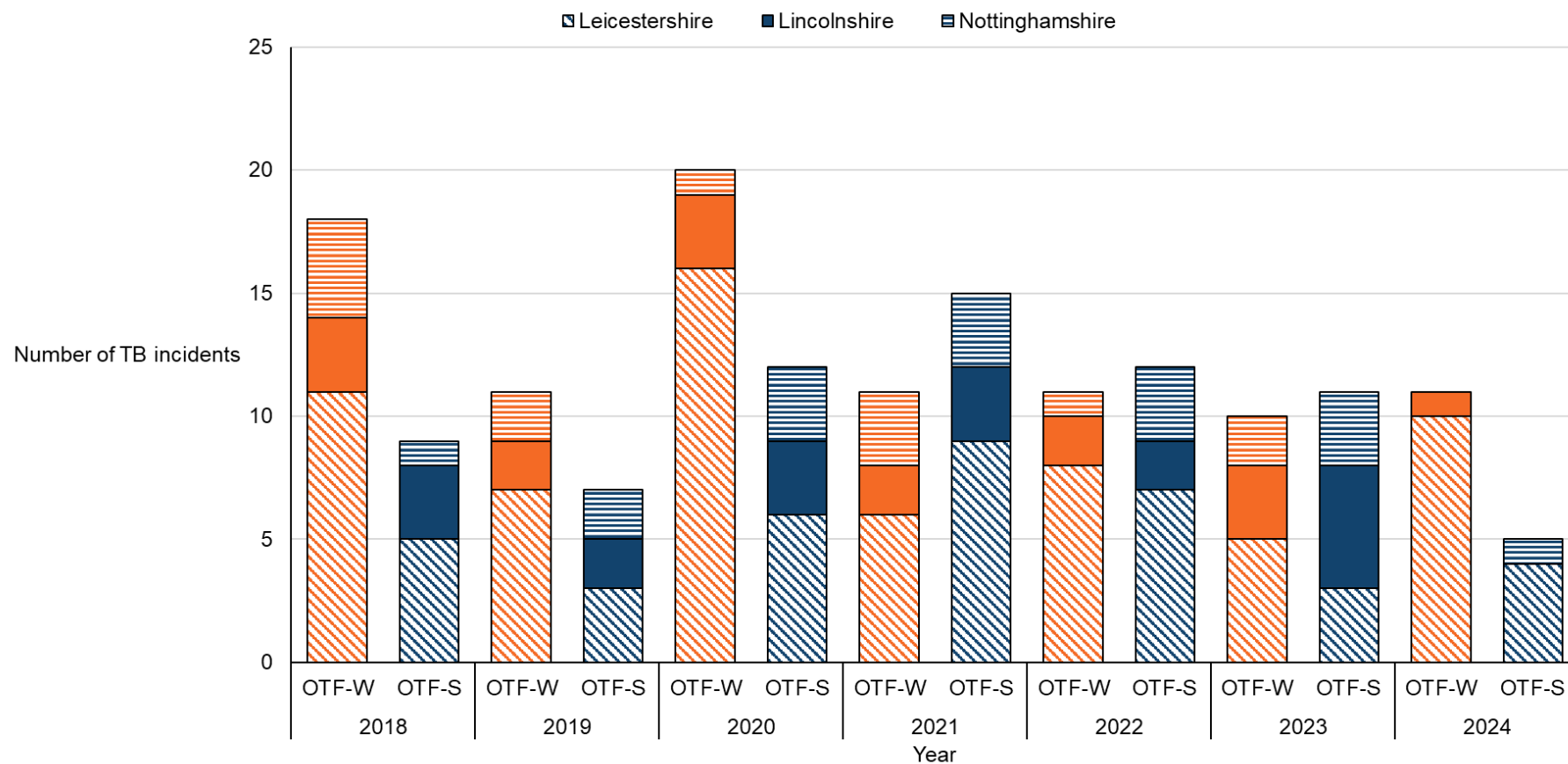


Figure 9: Annual number of new TB incidents in HS23, from 2018 to 2024. Incidents in the Leicestershire portion of HS23 are shown as diagonal stripes, those in Lincolnshire are solid colours, and those in Nottinghamshire are in horizontal stripes. OTF-W incidents are shown in orange, and OTF-S incidents in blue.

Main risk pathways and key drivers for TB infection

Not all Disease Report Form (DRF) veterinary investigations to identify the source of infection were carried out in 2024, with 37 out of 43 (86%) new TB incidents in Leicestershire receiving a preliminary or final investigation. The findings from these investigations are reported in Appendix 3.

It can be challenging to retrospectively establish the route of infection for a TB incident herd. Ideally this investigation includes a thorough on farm investigation and scrutiny of routinely collected data, such as cattle movement records, and the results of WGS where available. Up to 3 hazards and risk pathways were selected for each incident investigated. Each of these potential sources were given a score that reflects the likelihood of that pathway being the true one, based on the available evidence.

Details of the protocol used for these investigations, and the subsequent methodology used to calculate the weighted contribution of the different suspected sources of *M. bovis* infection can be found in the [explanatory supplement for the annual reports 2024](#).

The top 3 possible drivers of the occurrence of TB in cattle in Leicestershire during 2024 were:

- exposure to infected badgers
- movements of undetected infected cattle
- other or unknown sources

The most likely infection pathway for cattle herds in 2024 identified during APHA veterinary investigations was potential exposure to infected badgers, accounting for a weighted contribution of 49.8% (Appendix 3). This was higher compared to the previous year (37.3%), but lower than in 2022 (61.7%).

The movement of undetected, infected cattle into (and within) the county had a weighted contribution of 15.9%, which was similar to the previous year (16.0%).

Other or unknown sources had a lower weighted contribution of 12.3% in 2024 compared to 13.5% in 2023. This category is added to those incidents in which there was high uncertainty around the selected pathways as alluded to earlier in the report.

Residual cattle infection had a weighted contribution of 10.7%, which was slightly lower than previous years (11.6% in 2023).

Other infected wildlife (mostly wild deer) had a lower weighted contribution compared to the previous 2 years (5.2% in 2024 compared to 6.8% in 2023 and 7.2% in 2022).

Contiguous cattle infection had a weighted contribution of 4.1%, higher than previous years (0.0% in 2023 and 2.4% in 2022). Exposure to undetected infected contiguous cattle has been identified in certain incidents where cattle movements have not been found to be playing a role and where there is no known infection in wildlife.

Exposure to fomites had a weighted contribution of 1.9% in 2024, which is lower than the previous year (10.1% in 2023).

It is not always possible for a veterinary investigation to be carried out for every new TB incident. Therefore, new data driven methods to quantify the likelihood of risk pathways for TB infected herds have been developed by APHA, which include the:

- cattle movement algorithm
- WGS local transmission of infection indicator

The methodology used can be found in the [explanatory supplement for the annual reports 2024](#).

There is always a degree of uncertainty about the estimated true routes of TB infection into a herd. The absence of a local transmission event, or cattle movements associated with a high likelihood of infection does not completely negate these pathways. Nonetheless, the evidence provided by the cattle movement and WGS data, when combined, can provide valuable insights into the possible risk pathways. Figure 10 provides the percentage of herds where each risk pathway combination was identified. The spatial distribution of these categories is presented in Figure 11. Each category is described in greater detail in the following text.

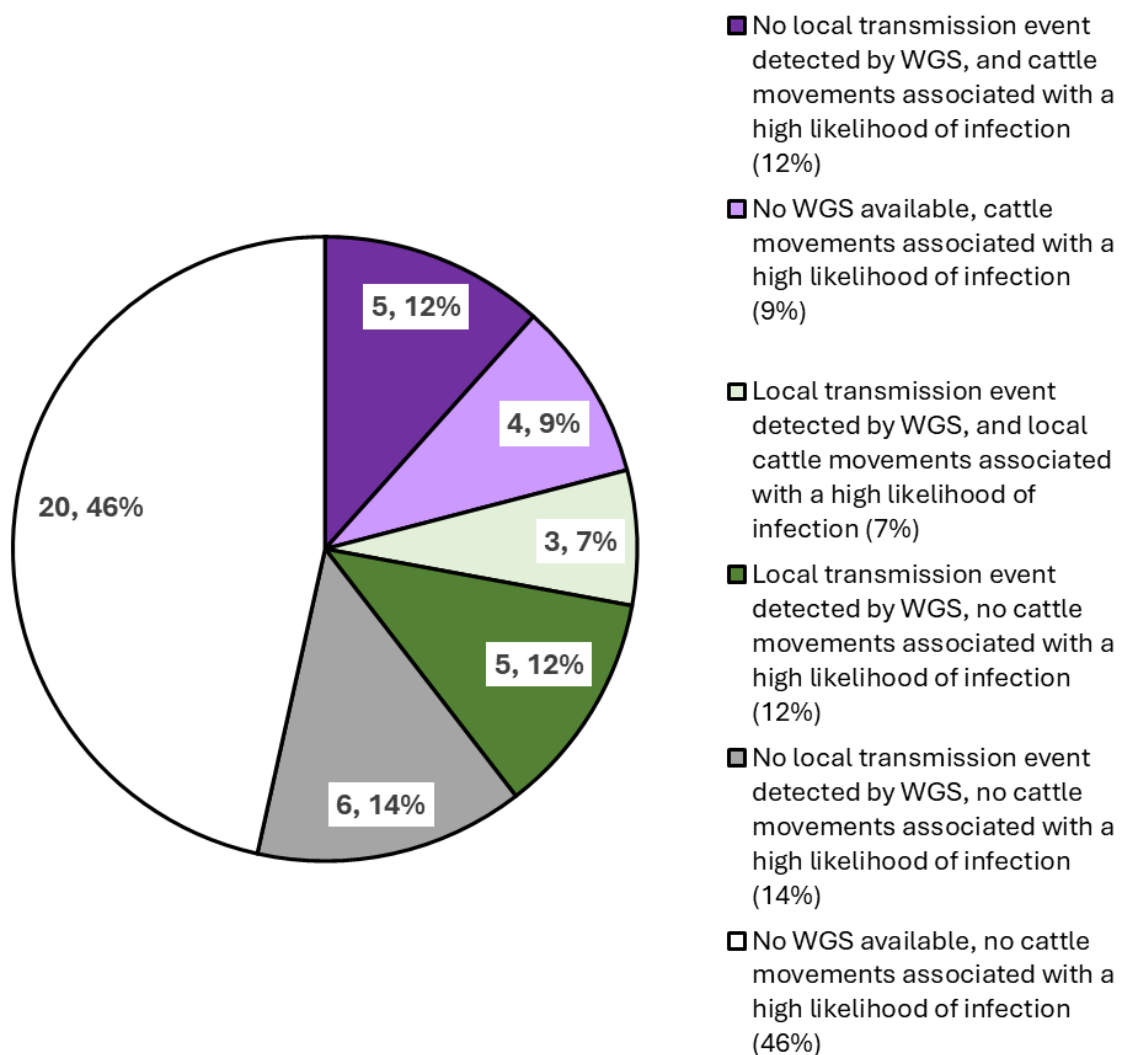


Figure 10: Pie chart showing the risk pathway combinations identified by the WGS local transmission of infection indicator and cattle movement algorithm for all 43 new TB incidents starting in Leicestershire in 2024. Numbers presented in each segment display the number of new TB incidents in 2024 in each segment and the percentage of the total new TB incidents in Leicestershire in 2024.

WGS data was available for 19 (44%) of the 43 new TB incidents disclosed across Leicestershire during 2024. The WGS local transmission of infection indicator identified a local transmission of infection event for 8 (19%) new TB incidents in 2024. A local transmission event is defined as evidence from WGS data which identified another *M. bovis* isolate within 3 single nucleotide polymorphisms (SNPs) away from another incident, which occurred within a 9km radius, and within the previous 4 years or following 6 months after incident confirmation.

There were 5 OTF-W incidents (12% of all new incidents in 2024, dark green symbols in Figures 9 and 10) for which a broad spectrum of local pathways cannot be ruled out, including:

- residual infection in the herd
- contiguous contact with infected cattle
- direct or indirect contact with potentially infected wildlife

This is because for these incidents:

- WGS data was available
- a local transmission event was identified
- without strong evidence of high risk cattle movements

There were 3 OTF-W incidents (7% of all new incidents in 2024, light green symbol in Figures 9 and 10) for which the source of infection may be attributed to the movement of undetected infected cattle from holdings within the local area (less than 25km), but other local infection pathways (as described above) cannot be ruled out.

This is because for this incident:

- WGS data was available
- a local transmission event was identified
- with strong evidence of local high-risk cattle movements (within 25km)

There were 5 OTF-W incidents (12% of all new incidents in 2024, dark purple symbols in Figures 9 and 10) for which the movement of undetected infected cattle from outside the local area is the most likely source of infection, however local cattle movements cannot be ruled out.

This is because for these incidents:

- WGS data available
- a local transmission event was not identified
- there was evidence of local or non-local high risk cattle movements

There was a further 4 TB incidents (9% of all new incidents in 2024, light purple symbols in Figures 9 and 10) for which the source of infection is likely to be related to the movement of undetected, infected cattle from within or outside the local area.

This is because for these incidents:

- no WGS data available
- local and non-local high risk cattle movements were identified

WGS data was not available for 24 (56%) of all new TB incidents in Leicestershire, accounting for 3 OTF-W and 21 OTF-S incidents. This absence of genetic data limits our ability to identify if these incidents are likely to be linked to local transmission of disease. Nevertheless, in these instances, the cattle movement algorithm can still provide an indication on the presence/absence of cattle movements that could have played a part in disease transmission.

There were 6 OTF-W incidents (14% of all new incidents in 2024, grey symbols in Figures 9 and 10) for which the source of infection remains unclear.

This is because for these incidents:

- WGS data was available
- a local transmission event was not identified
- there was no evidence of local or non-local high risk cattle movements

There were 20 TB incidents in 2024 (46% of all new incidents in 2024, white symbols in Figures 9 and 10) for which the source of infection remains unclear, but for which local pathways cannot be ruled out.

This is because for these incidents:

- no WGS data available
- no local or non-local high-risk cattle movements were identified

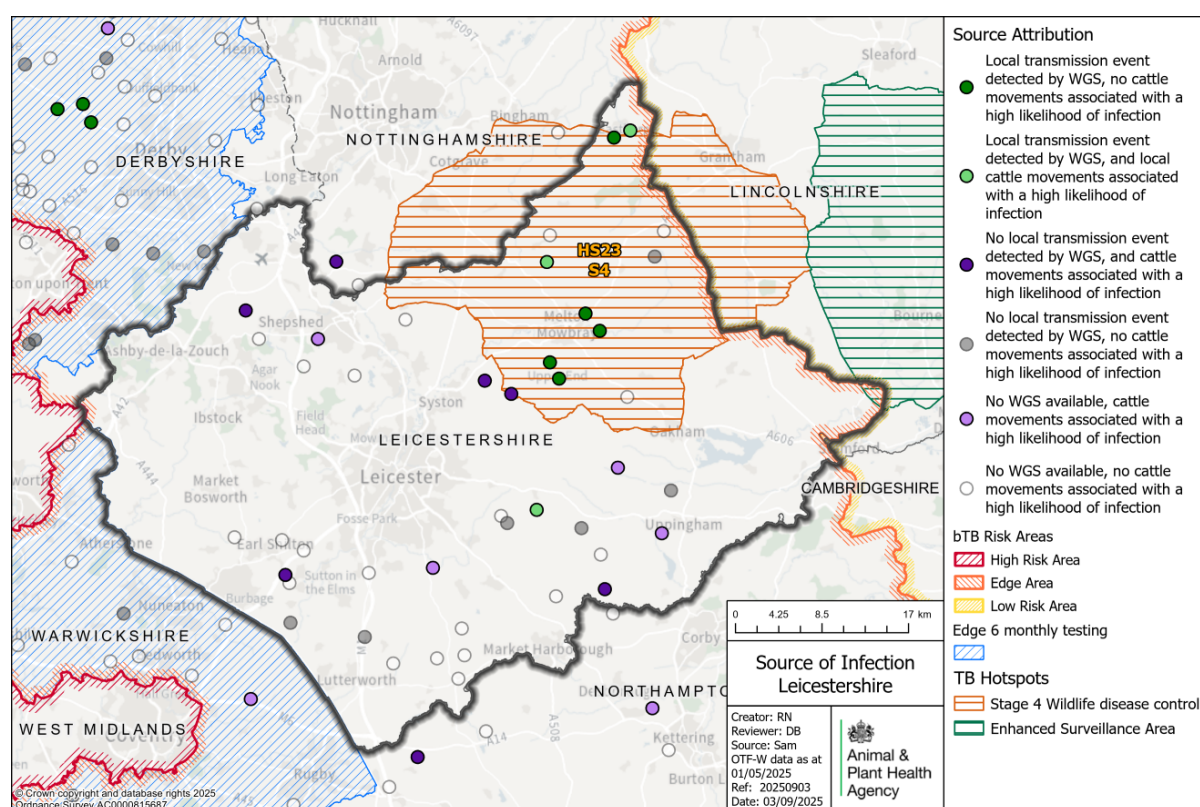


Figure 11: Map of the available evidence for risk pathways of TB infection into the herd, for all TB incidents (OTF-W and OTF-S) in Leicestershire that started in 2024.

Figure 11 description: Map of the Leicestershire and adjoining areas showing the locations of the 43 new TB incidents in Leicestershire, coloured by the risk pathway identified for the incident. Dark green are herds with a local transmission event was identified from WGS and no cattle movements with a high likelihood of infection were identified in the herd, light green represents incidents where local transmission event was identified from WGS and cattle movements with a high likelihood of infection were identified in the herd. Dark purple represents incidents where no local transmission event was identified from WGS and there were cattle movements

identified with a high likelihood of infection in the herd. Light purple represents incidents with no WGS available and where there were cattle movements identified with a high likelihood of infection in the herd. Grey shows incidents where no local transmission event was identified from WGS and there were no cattle movements with a high likelihood of infection were identified in the herd. White shows incidents with no WGS available and where there were no cattle movements with a high likelihood of infection were identified in the herd. The geographical location of TB hotspots is shown with hashed lines. The colour of the hotspot, along with the suffix S4, indicates the stage of controls in place in 2024: dark orange is stage 4 (wildlife disease control). Enhanced Surveillance Areas are shown with green hashed lines.

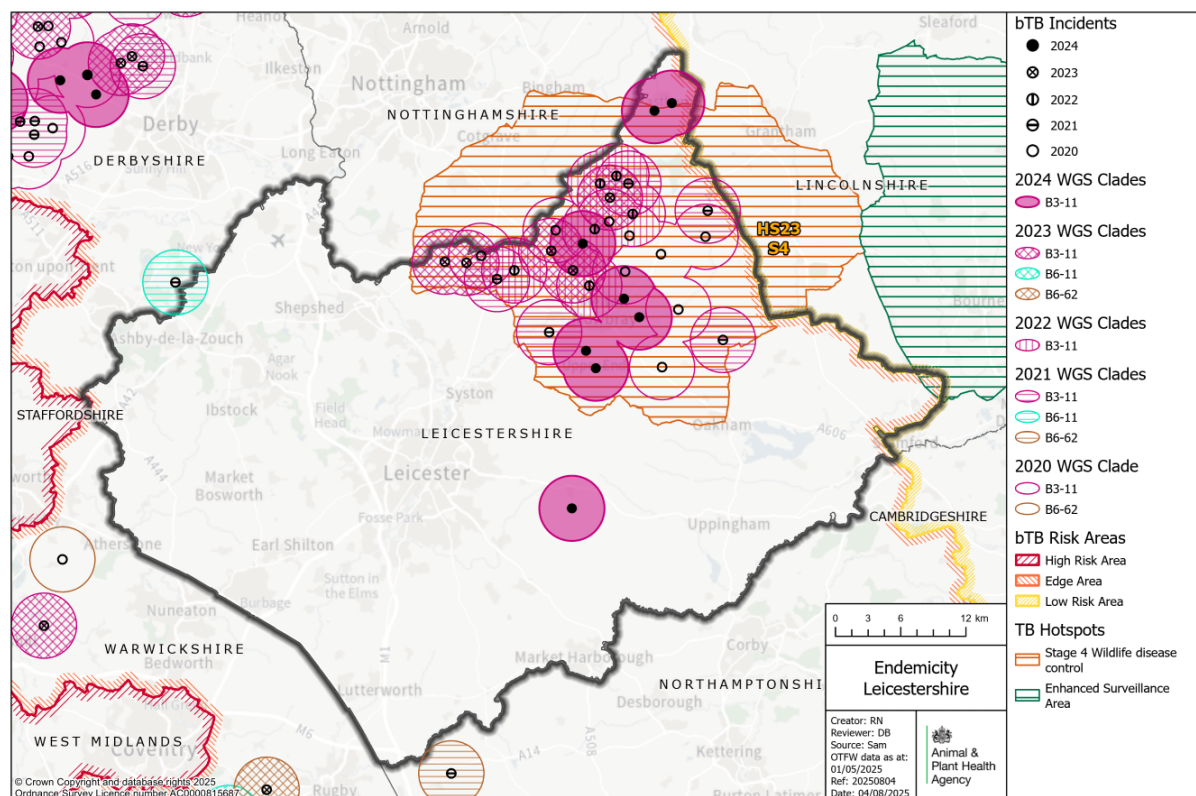


Figure 12: WGS clades of *M. bovis* detected in Leicestershire between 2020 and 2024, where the WGS clade identified in the infected herd was within 3 SNPs of another TB incident that was within 9km and occurred in the previous 4 years or 6-months after the incident of interest, with a 3km buffer zone around each incident. (OTF-W incidents only).

Figure 12 description: Map of Leicestershire and adjoining areas showing the location of TB incidents with a WGS clade where a local transmission event was identified. Clades are shown as circles on the map with each clade represented by a different colour. The year from which the clade was identified is shown a solid colour (2024) or different types of hash (2020 to 2023). The geographical location of TB hotspots is shown with hashed lines. The colour of the hotspot, along with the suffix S4, indicates the stage of controls in place in 2024: dark orange is stage 4 (wildlife disease control). Enhanced Surveillance Areas are shown with green hashed lines.

Forward look

It is concerning that following a decrease in incidence between 2020 and 2023 within Leicestershire, an increase was seen in 2024. It is currently unclear whether Leicestershire will achieve OTF status by 2038. However, it is hoped that following completion of the TB strategy refresh, which was launched in 2024, and continued work on the development of a cattle vaccine, as well as continual adoption of the following measures, the county will move towards TB eradication.

The measures needed to address the most common risk pathways for TB infection in Leicestershire are:

- incentivising the uptake of effective on-farm biosecurity measures by farmers, reducing the purchase of high-risk animals, and limiting nose-to-nose contact with neighbouring herds,
- prevention of interactions between cattle and wildlife on farm to minimise spread of TB from wildlife to cattle, and cattle to wildlife,
- further work by APHA and stakeholders to determine the most likely risk pathways for incidents with an uncertain pathway, with the added help of the cattle movement algorithm and where possible WGS,
- continuation and further adoption of measures to prevent the spread of TB from wildlife within HS23, including biosecurity, badger vaccination, and local control of the wild deer population, where appropriate and
- continue to improve diagnostics, surveillance and the understanding of the epidemiology of Bovine TB to detect and remove TB more effectively from cattle herds.

Appendix 1: cattle industry demographics

Table 1: Number of cattle herds by size category in Leicestershire as of 31 December 2024 (RADAR data on number of holdings in the report year)

Size of herds	Number of herds
Undetermined	6
1 to 50	339
51 to 100	136
101 to 200	121
201 to 350	82
351 to 500	27
Greater than 501	47
Total number of herds	758
Mean herd size	137
Median herd size	61

Table 2: Number (and percentage of total) of animals by breed purpose in Leicestershire as of 31 December 2024

Breed purpose	Number (and percentage of total) cattle
Beef	67,194 (64%)
Dairy	33,413 (32%)
Dual purpose	3,397 (3%)
Unknown	30 (0.029%)
Total	104,034

Appendix 2: summary of headline cattle TB statistics

Table 3: Herd-level summary statistics for TB in cattle in Leicestershire between 2022 and 2024 (SAM data)

Herd-level statistics	2022	2023	2024
(a) Total number of cattle herds live on Sam at the end of the reporting period	927	893	891
(b) Total number of whole herd skin tests carried out at any time in the period	1,011	846	1,010
(c) Total number of OTF cattle herds having TB whole herd tests during the period for any reason	768	735	727
(d) Total number of OTF cattle herds at the end of the report period (herds not under any type of TB movement restrictions)	847	831	819
(e) Total number of cattle herds that were not under restrictions due to an ongoing TB incident at the end of the report period	895	863	860
(f.1) Total number of new OTF-S TB incidents detected in cattle herds during the report period	29	28	21
(f.2) Total number of new OTF-W TB incidents detected in cattle herds during the report period	22	7	22
(f.3) Total number of new TB incidents (OTF-W and OTF-S) detected in cattle herds during the report period	51	35	43
(g.1) Of the new OTF-W herd incidents, how many can be considered the result of movement, purchase or contact from or with an existing incident based on current evidence?	6	2	7

Herd-level statistics	2022	2023	2024
(g.2) Of the new OTF-W herd incidents, how many were triggered by skin test Reactors or twice-inconclusive reactors (2xIRs) at routine herd tests?	10	1	9
(g.3) Of the new OTF-W herd incidents, how many were triggered by skin test Reactors or 2xIRs at other TB test types (such as forward and back-tracings, contiguous or check tests)?	9	4	9
(g.4) Of the new OTF-W herd incidents, how many were first detected through routine SLH TB surveillance?	3	2	4
(h.1) Number of new OTF-W incidents revealed by enhanced TB surveillance (radial testing) conducted around those OTF-W herds	0	0	0
(h.2) Number of new OTF-S incidents revealed by enhanced TB surveillance (radial testing) conducted around those OTF-W herds	0	0	0
(i) Number of OTF-W herds still open at the end of the period (including any ongoing OTF-W incidents that began in a previous reporting period)	19	12	18
(j) New confirmed (positive M. bovis culture) incidents in non-bovine species detected during the report period (indicate host species involved)	0	0	0
(k.1) Number of grazing approved finishing units active at end of the period	0	0	0
(k.2) Number of non-grazing approved finishing units active at end of the period	14	12	12
(k.3) Number of grazing exempt finishing units active at end of the period	0	0	0
(k.4) Number of non-grazing exempt finishing units active at end of the period	0	0	0

Table 4: Animal-level summary statistics for TB in cattle in Leicestershire between 2022 and 2024

Animal-level statistics (cattle)	2022	2023	2024
(a) Total number of cattle tested with tuberculin skin tests or additional IFN- γ blood tests in the period (animal tests)	156,393	136,146	172,371
(b.1) Reactors detected by tuberculin skin tests during the year	143	174	237
(b.2) Reactors detected by additional IFN- γ blood tests (skin-test negative or IR animals) during the year	131	115	147
(c) Reactors detected during year per incidents disclosed during year	5.4	8.3	8.9
(d) Reactors per 1,000 animal tests	1.8	2.1	2.2
(e.1) Additional animals slaughtered during the year for TB control reasons (dangerous contacts, including any first time IRs)	8	6	5
(e.2) Additional animals slaughtered during the year for TB control reasons (private slaughters)	22	2	18
(f) Slaughterhouse (SLH) cases (tuberculous carcasses) reported by the Food Standards Agency (FSA) during routine meat inspection	15	14	7
(g) SLH cases confirmed by <i>M. bovis</i> PCR testing or bacteriological culture	6	7	5

Note (c) Reactors detected during year per incidents disclosed during year, reactors may be from incidents disclosed in earlier years, as any found through testing during the report year count in the table above.

Note (g) SLH cases confirmed by culture of *M. bovis*, not all cases reported are submitted for culture analysis. All cases reported are from any period prior to or during restrictions.

Appendix 3: suspected sources of *M. bovis* infection for all the new OTF-W and OTF-S incidents identified in the report period

In 2024, 37 out of 43 (86%) new TB incidents in Leicestershire received a preliminary or final APHA veterinary investigation to identify the source of infection. Not all Disease Report Form (DRF) investigations were carried out in 2024.

Each TB incident could have up to 3 potential risk pathways identified. Each risk pathway is given a score that reflects the likelihood of that pathway bringing TB into the herd. The score is recorded as either:

- definite (score 8)
- most likely (score 6)
- likely (score 4)
- possible (score 1)

The sources for each incident are weighted by the certainty ascribed. Any combination of definite, most likely, likely, or possible can contribute towards the overall picture for possible routes of introduction into a herd. If the overall score for a herd is less than 6, then the score is made up to 6 using the 'Other or unknown source' option. Buffering up to 6 in this way helps to reflect the uncertainty in assessments where only 'likely' or 'possible' sources are identified.

Table 5 combines the data from multiple herds and provides the proportion of pathways in which each source was identified, weighted by the certainty that each source caused the introduction of TB. The output does not show the proportion of herds where each pathway was identified (this is skewed by the certainty calculation). WGS of *M. bovis* isolates can be a powerful tool in identifying a likely source of infection, however WGS clades are not determined for OTF-S herds. As a result of varying levels of uncertainty, only broad generalisations should be made from these data. A more detailed description of this methodology is provided in the [explanatory supplement for the annual reports 2024](#).

Table 5: Suspected sources of M. bovis infection for the 37 incidents with a preliminary or a final veterinary assessment in Leicestershire in 2024

Source of infection	Possible (1)	Likely (4)	Most likely (6)	Definite (8)	Weighted contribution
Badgers	11	10	19	1	49.8%
Cattle movements	7	6	2	1	15.9%
Contiguous	4	2	0	0	4.1%
Residual cattle infection	2	2	3	0	10.7%
Domestic animals	0	0	0	0	0.0%
Non-specific reactor	0	0	0	0	0.0%
Fomites	5	0	0	0	1.9%
Other wildlife	5	2	1	0	5.2%
Other or unknown source	3	0	0	0	12.3%

Please note that each TB incident could have up to 3 potential pathways so totals may not equate to the number of actual incidents that have occurred.



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